

WHAT IS CLAIMED IS:

1. A power conversion module comprising:
  - a housing having a proximal end and a distal end;
  - a mechanical stop mounted in the distal end of the housing;
  - a moveable piston disposed within the housing that divides the housing into first and second chambers;
  - a stack-piezo disposed within the first chamber between the mechanical stop and the piston;
  - a first sealing means disposed between the piston and the housing;
  - a shaft extending through an opening in the proximal end of the housing into the interior of the second chamber;
  - a second sealing means disposed between the shaft and the housing; and
  - a non compressible fluid contained within the second chamber.
2. The power conversion module of claim 1, wherein the mechanical stop is selected from the group consisting of: a plug, and a spring ring.
3. The power conversion module of claim 2, wherein the first sealing means is selected from the group consisting of: a step and seal combination, and a groove and ring seal combination.
4. The power conversion module of claim 2, wherein the second chamber further comprises a channel positioned opposite the piston.
5. The power conversion module of claim 1, wherein the second sealing means is an o-ring.

6. The power conversion module of claim 5, wherein the o-ring is made of a material selected from the group consisting of: rubber, and a reinforced wax and cotton combination.
7. The power conversion module of claim 1 wherein the mechanical stop exerts a bias pressure on the stack-piezo ranging from approximately 1 to 10 newtons.
8. The power conversion module of claim 1, wherein the housing is made from a material selected from the group consisting of: hard plastic and metal.
9. The power conversion module of claim 1 wherein the non compressible fluid is hydraulic fluid.
10. The power conversion module of claim 1, wherein the second chamber has a distal diameter within the range of from approximately 3 millimeters to 50 mm, and the shaft has a diameter in the range of from approximately 0.4 millimeters to 12 millimeters.
11. The power conversion module of claim 1 further comprising a biasing means in contact with the proximal end of the shaft, wherein the biasing means exerts pressure on the shaft .
12. The power conversion module of claim 11 wherein the biasing means is selected from the group consisting of: a return spring, an air pressure source, and a water pressure source.
13. The power conversion module of claim 1 further comprising an electronic driver connected to the stack-piezo with connecting wires.

14. The power conversion module of claim 1, the second chamber further comprising:
  - at least one front wall;
  - a small opening in the proximal end of the front wall; and
  - at least one sidewall;wherein an angle  $\theta$  measured between the at least one front wall and at least one side wall is in the range of from 90 degrees to approximately 150 degrees.
15. The power conversion module of claim 1 further comprising a shaft guard disposed at the proximal end of the housing having an opening with a diameter slightly larger than a diameter of the shaft, allowing the shaft to move freely through the opening in the shaft guard.
16. A power conversion module comprising:
  - a housing;
  - a first chamber containing a stack piezo;
  - a second chamber containing a non compressible fluid comprising
    - at least one front wall having an opening there through; and
    - at least one sidewall; wherein
    - an angle  $\theta$  measured between the at least one front wall and the at least one side wall is within the range of from approximately 130 to approximately 150 degrees;
  - a seal disposed between the first and second chamber; and
  - a shaft extending into the second chamber through the opening;

wherein the stack piezo, sealed chamber, and shaft are longitudinally aligned.

17. The power conversion module of claim 16 wherein the angle  $\theta$  measures 145 degrees.

18. The power conversion module of claim 16, further comprising a piston disposed between the stack-piezo and the second chamber.

19. The power conversion module of claim 11, further comprising a shaft guard disposed at the proximal end of the housing having an opening with a diameter slightly larger than a diameter of the shaft, allowing the shaft to move freely through the opening in the shaft guard.

20. The power conversion module of claim 11 further comprising a third chamber, wherein the biasing means is disposed within the third chamber.

21. The power conversion module of 11, wherein the biasing means comprises a lever.

22. The power conversion module of claim 11 further comprising:  
an electronic driver electrically connected to the stack-piezo; and  
an additional chamber having the electronic driver disposed therein.

23. The power conversion module of claim 1, wherein the shaft has a diameter in the range of from approximately 0.4 millimeters to approximately 12 millimeters.